Galileo Infrared Observations of the Shoemaker/Levy-9 Impacts of Jupiter

W. D. Smythe (JPL) and the NIMS Team.

A direct view of the impact sites of the comet fragments from the Galileo spacecraft allows a study of the fireball expected to occur during the first minutes following each impact. Predicted temperatures of a few thousand degrees place the spectral emission within the wavelength range (0.7 to 5.2 μm) of the Near Infrared Mapping Spectrometer, which will observe several of the events in seventeen wavelength bands. The spectral bands chosen exhibit differing gas opacities and allow sounding at various depths in the atmosphere. These spectral positions include the Jovian spectral windows (e.g. 2.7 and 5 μm windows and shorter wavelength continuum regions) and a band for H_3^+ emission. To ensure observation of the impacts, given spacecraft pointing errors, the scan platform will dither across Jupiter with a 5 second period. Data will be recorded for 64 minutes for 4 impacts, although only a portion of these data will be selected for playback. Preliminary results of the spectral properties and time development of an observed fireball will be presented.